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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/509,121	03/23/2000	HIDEKAZU KOBAYASHI	105034	3415

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EXAMINER	
ROY, SIKHA	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/509,121	KOBAYASHI, HIDEKAZU	
	Examiner	Art Unit	
	Sikha Roy	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15,17 and 19-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15,17 and 19-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *03 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/3/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Amendment, filed on February 3, 2005 has been entered and is acknowledged by the Examiner.

The new Drawing of Fig. 6 has been entered and is approved by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15, 17, 19-21, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,618,029 to Ozawa and further in view of U.S. Patent 5,739,635 to Wakimoto.

Regarding claim 15 Ozawa discloses (Figs. 3,6B column 7 lines 52-58, column 8 lines 1-22) an electroluminescent display device comprising banks defining a plurality of pixels provided above the substrate, not overlapping with the light emitting layer and having at least a TFT device (TFT 30), an anode (pixel electrode) 41 provided above the TFT device, a light emitting layer (organic semiconductor film) 43 provided above the anode, a cathode (counter electrode "op") continuously formed above the anode so as to cover the plurality of pixels.

Claim 15 differs from Ozawa in that Ozawa fails to exemplify a thin-film layer provided above the light emitting layer and under the cathode continuously formed so as to cover the plurality of pixels.

Wakimoto in analogous art of organic electroluminescent device discloses (column 2 lines 1-10,53-58, column 6 lines 20-30Fig. 3) an electroluminescent device comprising a light emitting layer 3 including organic polymer (organic compound such as dicyanomethalene derivatives, quinacridone derivatives) emitting light in the visible spectrum between the anode 2 and cathode 1 and a thin film layer 6b (electron-injecting layer of an insulating thin film) disposed between the light emitting layer 3 and the cathode 1. Wakimoto further discloses this thin film layer 6b made of alkaline metal compound such as alkaline metal halide, alkaline metal oxides having a very low work function acts as an insulator (column 2 lines 59-67) and hence inherently works as a means for suppressing the current flowing through the light-emitting layer and thus improves the emitting efficiency of the organic EL device which stably emits light at a high luminance upon application of low voltage for a long time.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the continuously formed cathode over the pixel of organic electroluminescent device of Ozawa by cathode and the thin film layer continuously formed under the cathode as disclosed by Wakimoto for suppressing the current flowing through the light-emitting layer and thus providing an organic EL device capable of emitting light for a long time.

Regarding claims 17 Wakimoto discloses (column 2 lines 59-66) that the means for suppressing the current flowing through the light emitting layer and not contributing to the light emission (electron injecting layer) is made of alkaline metal oxides and alkaline metal halides.

Regarding claim 19, Ozawa discloses (Fig. 5) the bank overlapping the edges of the anode 41.

Regarding claims 20 and 21 Ozawa discloses (column 8 lines 13- 19) an electroluminescent device comprising a hole injection layer (buffer layer) having electrical conductivity formed between the light-emitting layer and the anode.

Regarding claims 20 and 21 Ozawa and Wakimoto disclose the claimed invention except for the limitation of thickness of the hole injection (buffer) layer being not less than 100nm. The conductivity of hole injection layer depends on the thickness. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to include the thickness of the hole injection (buffer) layer to be not less than 100nm, for providing desired conductivity since discovering an optimum value of a result variable is considered within the skills of the art.

Regarding claim 25 Ozawa discloses (column 8 lines 14-16) the light-emitting layer being formed by depositing a plurality of light-emitting layers.

Regarding claim 26 Ozawa discloses (column 1 lines 5-15) the electroluminescent device used in an active matrix-type display apparatus, an electronic device.

Claims 22 and 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,618,029 to Ozawa, and U.S. Patent 5,739,635 to Wakimoto and further in view of U.S. Patent 6,111,356 to Roitman et al.

Referring to claims 22 and 23 Ozawa and Wakimoto do not disclose light emitting layer including at least one of polyfluorene and derivative of polyfluorene, poly(p-phenylenevinylene) and derivative of poly(p-phenylenevinylene).

Roitman et al. in the same field of endeavor disclose (column 2 lines 56-59) the polymer layers of electroluminescent material include polyfluorene and polyphenylenevinylene. Roitman et al. further note (column 4 lines 44-56) that the layers formed of these polymers maintain their mechanical integrity, resistance to lifting off and electronic characteristics through the process of development and hence are preferred.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include polyfluorene and polyphenylenevinylene in the light emitting layer as taught by Roitman et al. in the electroluminescent device of Ozawa and Wakimoto for their maintenance of mechanical integrity, resistance to lifting off and electronic characteristics through the process of development.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,618,029 to Ozawa, and U.S. Patent 5,739,635 to Wakimoto and further in view of JP 10-36487.

Regarding claim 24 Ozawa and Wakimoto do not exemplify the degree of organic polymerization being at least two.

JP 10-36487 in relevant art of organic electroluminescent device discloses the degree of polymerization of the organic polymer is desirable between 1 and 2000. It is noted that depending on the degree of polymerization the fluorescent material of a polymer-based EL element can be produced by a simple process, has a well-defined structure and soluble in organic solvents for easy film formation. Regarding claim 24, Ozawa and Wakimoto in view of JP 10-36487 disclose the claimed invention except for degree of polymerization being at least 2. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have selected the organic polymer of Wakimoto and JP 10-36487 to be at least 2, since the selection of known materials for a known purpose is within the skill of the art.

Response to Arguments

Applicant's arguments with respect to claim 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication 20030054186 to Miyashita et al. discloses active matrix display with organic light emitting layers separated by banks and having cathode layer continuously formed on the pixels.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SR

Sikha Roy
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Art Unit 2879

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